

Health & Science

# Spaceship Earth: A new view of environmentalism

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By [Joel Achenbach](#)

Spaceship Earth enters 2012 belching smoke, overheating and burning through fuel at a frightening rate. It's feeling pretty crowded, and the crew is mutinous. No one's at the helm.

Sure, it's an antiquated metaphor. It's also an increasingly apt way to discuss a planet with 7 billion people, a global economy, a World Wide Web, climate change, exotic organisms running amok and all sorts of resource shortages and ecological challenges.

More and more environmentalists and scientists talk about the planet as a complex system, one that human beings must aggressively monitor, manage and sometimes reengineer. Kind of like a spaceship.

This is a sharp departure from traditional "green" philosophy. The more orthodox way of viewing nature is as something that must be protected from human beings — not managed by them. And many environmentalists have reservations about possible unintended consequences of well-meaning efforts. No one wants a world that requires constant intervention to fix problems caused by previous interventions.

At the same time, "we're in a position where we have to take a more interventionist role and a more managerial role," says Emma Marris, author of "[Rambunctious Garden: Saving Nature in a Post-Wild World](#)." "The easy answer used to be to turn back time and make it look like it used to. Before was always better. Before is no longer an option."

Although Marris is speaking about restoration ecology — how to manage forests and other natural systems — this interventionist approach can be applied to the planet more broadly. In his book "[The God Species: Saving the Planet in the Age of Humans](#)," environmental activist Mark Lynas writes, "Nature no longer runs the Earth. We do. It is our choice what happens from here."

The wilderness movements of John Muir in the 19th century and Teddy Roosevelt in the early 20th sought to draw boundaries between civilization and nature. The goal was to protect the biggest mountains, the deepest gorges, the wildest places, according to Douglas Brinkley, author of "[The Wilderness Warrior: Theodore Roosevelt's Crusade for America](#)."

But after Rachel Carson published "Silent Spring" 50 years ago, detailing the ecological damage from the pesticide DDT, the movement began looking more at industrial pollutants and hazards to human health, Brinkley says. Then, in the 1990s, climate change began to dominate the discussion.

This is a different planet in key respects than the one Carson was writing about. The fingerprints of humankind are now found on every continent, in every sea. Radiation from atomic tests can be found in sediments across the world, and the chemical signature of the Industrial Revolution, when coal began to power human activity, can be seen in ice cores drilled in Greenland. Earth is warming even as a growing human population is demanding more energy, using more resources, burning more fossil fuels and emitting more greenhouse gases. The challenges have scaled up.

As a result, some influential thinkers argue for a managerial approach to the planet that is short on sentiment and long on science and technology.

Ecologists, for example, have long bemoaned the invasive species that, stowing away amid the human cargo of the global economy, are reworking entire landscapes and overpowering many native species. The old approach would be to try to eradicate the invaders. The new approach argues that "novel landscapes" are here to stay and that humans may have to take direct action to relocate native species to stay ahead of climate changes.

One of the deans of technological environmentalism is Stewart Brand, who in the 1960s ran around with Ken Kesey and the LSD-gobbling Merry Pranksters. In 1968 he published the "Whole Earth Catalog," which combined hippie sensibility with early computers and nifty gadgets. His catalog had a famous inscription: "We are as gods, and might as well get good at it."

Brand's philosophy was pro-technology amid a counterculture movement that often saw technology as an evil — as the source of pollution, industrial-scale warfare and nuclear weapons. Early on, Brand saw the personal computer as a source of individual empowerment and resistance to authority; he sponsored an early convention of computer hackers.

Brand, whose most recent book is "Whole Earth Discipline: An Ecopragmatist Manifesto," advocates the use of genetically modified organisms and nuclear power, and speaks of "solar radiation management" through cloud-seeding and other forms of "geoengineering" as possible mitigators of climate change.

This isn't green orthodoxy, obviously. Albert Borgmann, a professor of philosophy at the University of Montana who has written extensively on technology and the environment, worries about a possible overreliance on technology to fix problems that humans have made.

"It has to be done in a spirit of cautionary respect. There has to be some rueful recognition that the spirit of managing things has gotten us where we are. That same sort of arrogance — we control it all — can't continue," Borgmann says.

Beyond the philosophical questions are nuts-and-bolts issues about how people could intelligently manage something as complicated as the natural world. We might not be good at it.

A number of recent events have shown that complex technological systems are vulnerable to rare but consequential failures. The BP oil spill, for example, happened despite elaborate technologies and monitoring systems designed to prevent an oil-well blowout, or at least shut down a runaway well if the initial line of defense failed.

Investigators said that engineering decisions eroded the safety margin in an attempt to cut costs. But the technology wasn't as robust as engineers thought it was.

Even more humbling was the March 11 earthquake in Japan. The earthquake wasn't supposed to be possible. The seismic hazard maps showed that the maximum possible earthquake along the Japan Trench — the huge fault line where one plate of the Earth dives beneath another — could generate earthquakes up to magnitude 8.4. But on the afternoon of March 11, the fault broke and generated an earthquake registering 9.0, which was six times stronger than the theoretical maximum.

That misunderstanding of the quake hazard led to a fundamental error in the design of the Fukushima Daiichi nuclear plant built on the seacoast. The plant was protected by a tsunami wall that could handle waves up to 18.7 feet high. The first wave after the earthquake was 13 feet high, and the second was so much bigger that it obliterated the tide gauge used to measure wave height. The biggest wave may have been as high as 49 feet, according to an investigation by the Institute of Nuclear Power Operations.

The tsunami knocked out the backup power generators at the plant, which in retrospect were located too low. Without electricity, the Fukushima plant couldn't cool the nuclear fuel rods and fuel tanks, and a series of explosions and meltdowns released large amounts of radiation into the environment for months.

"The earthquake doesn't tell us whether we should do nuclear, but the earthquake does tell us that we're better off, if we're doing nuclear, to have a good understanding of the world around us," says Richard B. Alley, a Penn State climate scientist and author of "Earth: The Operator's Manual."

Author and activist Bill McKibben published a 2011 book titled "Eaarth," which he proposes as the name for this fundamentally new planet, one that, in his view, won't be as pleasant for human beings as the one they used to know and will require a new set of values and aspirations. McKibben's view is of a world that is more decentralized in political power, energy generation and food production.

"The future should belong, and could belong, to the small and many, not the big and few," McKibben says. Decentralization would help prevent small problems from expanding into societal catastrophes, he says.

Successful management of global environmental issues would require political leadership that McKibben, Brand and others say hasn't materialized. Dealing with climate change, for example, "involves a level of global cooperation that has never happened, and the mechanisms for that are not in sight," Brand says.

Nonetheless, he's an optimist about human beings in general.

"We're getting better," he says. "We are getting far less violent, less cruel and less unjust, steadily for the last millennia, centuries, years and days. It's a remarkably human accomplishment in basically domesticating ourselves."

Brand would amend the famous "We are as gods" inscription of his 1968 book:

"The new version of that is, 'We are as gods and *have* to get good at it.'"

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